projector in which red (R), green (G) and blue (B) image lights are synthesized by a cross-prism 1b of the projector 1 and the synthesized color image is projected from the projector 1. A focusing optical system is constructed with aspherical focusing mirrors 5d to 5a in the order with the focusing mirror 5d being arranged in front of the projector 1 and the focusing mirror 5a reflecting the color image onto the flat reflection mirror 2, so that an optical path extends in a zigzag manner and the image light is guided upward while folded by reflections on the respective four focusing mirrors. The flat folding mirror 2 is provided in an upper portion of the rear side of the casing in a facing relation to the last focusing mirror 5a and the flat folding mirror 3 is provided on the upper side of the casing. Therefore, light emitted from the projector 1 is reflected and folded by the focusing mirrors 5d to 5a, the flat folding mirror 2 and the flat folding mirror 3, passes through the zigzag optical path and projected on the screen 4.

In the rear projection television according to the second embodiment of the present invention, in order to further reduce the depth size of the television, the image projecting system including the projecting and focusing mirrors each comprising an aspheric mirror, the flat folding mirror 2 and the flat folding mirror 3 is arranged between the projector 1 and the screen 4, as mentioned. Since the aspheric mirror can reflect light upward at large

angle compared with a lens or a flat mirror, etc., the light can be expanded at high power within a short projecting optical path by using the aspherical projecting and focusing mirrors 5a to 5d. Further, with using the aspherical projecting and focusing mirrors 5a to 5d, the upward angle ζ of the projecting light (incident light Li) becomes larger compared with the case where a usual projecting lens is used. Therefore, the incident angle of light on the screen 4 becomes large and the flat mirrors and other parts are not interfered by the folding and reflection of the projected light from the aspheric mirrors and/or the incident light on the flat mirrors is not blocked by the aspheric mirrors. As a result, it becomes possible to substantially reduce the depth size of the rear projection television.

The screen 4 may be constructed with the Fresnel lens 7 and the lenticular lens 8, etc., as in the first embodiment and the light beam reflected by the flat mirror 3 is focused on the screen 4.

A rear projection television according to a third embodiment of the present invention will be described with reference to FIG. 7. As shown in FIG. 7, a flat mirror 3 provided on a lower surface of an upper plate of a casing makes an angle of 95° with respect to a screen 4. A projector 1 and a focusing optical system including a plurality of aspherical focusing mirrors 5a to 5d are arranged in the casing of the rear projection television in

a similar manner to the first embodiment shown in FIG. 4.

A light beam emitted from the projector 1 is reflected by the focusing mirrors 5d, 5c, 5b and 5a in the order toward the flat mirror 3 at an angle as large as 45 degrees or more with respect to a normal line of the screen 4. The projecting light beam containing an image information from the projector 1 is reflected by the flat mirror 3 and focused on the screen 4 on a front surface of the casing. Although the flat mirror 3 is mounted at an angle of 95 degrees with respect to the screen surface in FIG. 7, this angle may be changed within a range from 70 degrees to 120 degrees with the above mentioned effect.

FIG. 8 illustrates the focusing mirrors used in the respective embodiments as the focusing optical part. As shown in FIG. 8, a light beam emitted by a projector, which is not shown, passes through an image display element 6 constructed with a liquid crystal panel or a DMD and is directed to a mirror 5d. The light beam reflected by the mirror 5d is further reflected by a mirror 5c, a mirror 5b and a mirror 5a sequentially in the order. The light beam reflected by the mirror 5a is directed to a flat mirror provided on a rear plate of a casing, which is not shown, or an upper plate of the casing and is reflected thereby to a screen, which is not shown.

FIG. 9A and FIG. 9B are a plan view and a front view of a screen suitable for use in the embodiments of the present invention, respectively. The screen is constructed